



BHCTP Monthly Discharge Monitoring Report

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Month: March-17
Facility: Central Treatment Plant
Location: Bunker Hill Superfund Site
Contract Number: W912DW-13-C-0026-P00017

<u>Total Flow For The Month From 006 Outfall:</u>	60,308,200	gallons
Sludge pumping to CIA sludge pond:	2,463,000	gallons
<u>Total Flow From Kellogg Tunnel:</u>	58,977,410	gallons

Percent of Influent Successfully Treated: 100.0%

14 sample days * 6 parameters (Pb, Cd, Zn, Mn, TSS & pH) = 84 potential exceedances
84 - 0 exceedances = 84 84/84 = 100%

Results of Sampling Efforts:

All sampling has been performed in accordance with specifications and the Sampling and Analysis Plan. QC and QA samples have been taken as required. All sample analysis results may be found within this DMR.

Performance Evaluation (PE) sampling for the CTP continued, with five PE samples delivered to SVL for this reporting period. The PE samples were identified as CTPXX (random CTP sites). These samples consisted of preserved 500-ml trace metal samples to be analyzed for Cd, Pb and Zn. The PE acceptable quantitation range is listed on the 'QC' page of this DMR.

Trip blank and rinsate samples were also taken, with the results being reported on the 'PTM-004,RB,TB' page of this DMR.

Highlights of Plant Maintenance and/or Plant Optimization:

03-01-17 Performed monthly fire extinguisher inspection. All CTP fire extinguishers are fully charged and in good working condition at this time.

03-01-17 Performed monthly pump and motor inspection. All CTP pumps and motors are in good condition at this time with the exception of the Rapid Mix Tank gear box. Gear box vibration is increasing.

03-01-17 Performed lined storage pond pumping to decrease the volume of water and increase the available storage capacity.

03-06-17 13:30 Increased process pH set point from 8.3 to 8.4. The process pH set point was increased in response to elevated zinc levels in the treated discharge 24-hr sample analysis.

03-09-17 CTP Lead Operator and the Process Engineer attended the monthly CTP process review meeting. Process pH of 8.3 was discussed. KT discharge pumping schedule was reviewed. Process quality, plant operations and operator work schedules were reviewed. OMER projects were reviewed. The performance evaluation sample results were reviewed by the lead operator and process engineer. Process engineer verified the flocculent dosage and pH grab sample quality.

03-14-17 Operators performed the monthly no-load emergency generator run test. The emergency generator operated no CTP components during the 30-minute run test. A generator run test report was submitted to the COR.

03-15-17 Performed a Clarifier underflow pipeline back flush. During this KT low-flow period, the underflow pipes were back flushed using city supply water. All three pipes were found to be clear of any blockage at this time.

03-16-17 PTM discharge flow at the lined storage pond is 30 gpm at this time.

03-16-17 Old Mine Line discharge flow at the lined storage pond is 25 gpm at this time.

03-16-17 Mine personnel informed CTP operating staff that the mine pool pump failed Friday, March 17th. The KT flow at this time is 1400 gpm, consisting of gravity flow only. Mine personnel will be installing three temporary pumps today. At this time, the CTP operating staff does not know the capacity of the three temporary pumps.

03-19-17 Dilution water was removed from the lime slurry mixing process to increase the lime slurry percent solids. The 11.3% solids lime slurry mixture is too low to maintain an operating pH of 8.6. The CTP influent remains gravity flow only of approximately 1250 gpm at this time. The influent pH is approximately 2.77. The large lime slurry grit removal screens have also been installed to aid in strengthening the lime slurry solids. The mine operator has not placed a mine pool pump into operation.

03-21-17 Process pH swings activated the auto dialer alarm at 05:00. Manual lime injection control was needed to control the pH swings. The process engineer and COR were notified of the process and KT flow changes. Lime slurry dilution water was increased from 0 gpm to approximately 20 gpm to decrease the lime % solids. Recycled sludge solids will be increased to approximately 7% from 3.5% in an attempt to control the pH swings.

03-22-17 The process pH swings have decreased to below alarm levels and continue to decrease. The pH swings have stabilized. Operators continue to perform after-hours sludge monitoring and pumping to control process turbidity.

03-25-17 20:00 Mine operator activated the temporary mine pool pump. The temporary mine pool pumping capacity is approximately 450 gpm. The temporary pump will remain in service until the primary pump is rebuilt.

03-28-17 Operators performed the monthly full-load emergency generator run test. The emergency generator operated all CTP components for one hour as programmed with no issues or errors to report.

03-31-17 Performed the monthly flow meter resets and total flow documentation.

03-31-17 Reduced the treatment process pH set point from 8.6 to 8.5. Recent treated outfall sample analyses indicate low and declining metals concentrations. The process pH set point reduction was discussed with the process engineer.

During this reporting period:

- The Kellogg Tunnel discharge flow decreased by 8% from March 2016, from 64.0 mg to 59.0 mg.
- The Kellogg Tunnel zinc concentration increased by 97% from March 2016, from an average of 63 mg/L to 124 mg/L.
- The CTP operating pH set point was increased to 8.6 from 8.4 during extended KT low-flow and runoff periods.
- The flocculent dosage remained at approximately 2 ppm to reduce process turbidity.
- The CTP sludge recycle rate remained at 400 gpm.
- CTP operators received two off-shift auto dialer call-out alarms caused by pH swings and mine pump activation.
- CTP operators performed eight pumping events from the Lined Pond.
- CTP operators verified Aeration Basin pH probe and grab sample values twice per day.
- CTP operators remained in contact with the mine owner and mine manager during this runoff period.
- CTP operators performed daily inspections of the lime slurry holding tank, with no leaks or increased corrosion found this month.

Lessons Learned

High percent solids in the lime slurry may contribute to pH swings.

Spring runoff can occur as early as mid-March.

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
2017	3	1	2017	3	31

PARAMETER		Quantity or Loading			Quality or Concentration				FREQUENCY OF ANALYSIS	SAMPLE TYPE
		MONTHLY AVERAGE	DAILY MAXIMUM	UNITS	MINIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	UNITS		
pH	Sample Measurement				6.50		7.17		Continuous	Meter
	Permit Required				6.0		10.0			
Flow Thru Treatment Plant	Sample Measurement	1.95	2.40	mgd						
	Permit Required		Daily							
Lead Total - Pb Effluent	Sample Measurement	0.06	0.07	lbs/day		0.004	0.004	mg/L	three samples/ week	Comp 24
	Permit Required	14.8	37.0			0.30	0.60	mg/L		
Zinc Total - Zn Effluent	Sample Measurement	6.57	12.50	lbs/day		0.39	0.68	mg/L	three samples/ week	Comp 24
	Permit Required	36.2	91.3			0.73	1.48	mg/L		
Cadmium - Cd Effluent	Sample Measurement	0.12	0.193	lbs/day		0.007	0.011	mg/L	three samples/ week	Comp 24
	Permit Required	2.40	6.10			0.050	0.100	mg/L		
Manganese - Mn Effluent	Sample Measurement	162	426	lbs/day		10.2	25.9	mg/L	three samples/ week	Comp 24
	No Permit Required					N/A	N/A	mg/L		
Total Suspended Solids - TSS	Sample Measurement	11.3	24	lbs/day		0.7	1.2	mg/L	three samples/ week	Comp 24
	Permit Required	985	1907			20	30	mg/L		

PREPARED BY: GARY FULTON

REVIEWED BY: Mark Reinsel, Ph.D., P.E.

NPDES DISCHARGE POINT 006
CENTRAL TREATMENT PLANT
MONTH: Mar-17

DAY	LEAD (Pb)		ZINC (Zn)		CADMIUM (Cd)		MANGANESE (Mn)		pH	FLOW	TSS		LOADING
	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day			mgd	mg/L	lbs/day
1	0.004	0.045	0.326	4.11	0.006	0.08	21.5	271	6.99	1.51	0.2	2.52	1.14
2		0.060		5.47		0.10		361		2.01		3.36	1.52
3	0.004	0.059	0.548	9.01	0.011	0.18	16.6	273	7.17	1.97	0.8	13.2	5.96
4		0.060		9.19		0.18		278		2.01		13.4	6.09
5		0.062		9.44		0.19		286		2.06		13.8	6.25
6	0.004	0.059	0.475	7.82	0.008	0.13	25.9	426	6.92	1.97	0.6	9.87	4.48
7		0.059		7.81		0.13		426		1.97		9.86	4.47
8	0.004	0.058	0.366	5.94	0.007	0.11	24.2	392	6.90	1.94	0.8	13.0	5.88
9		0.059		5.97		0.11		395		1.95		13.0	5.92
10	0.004	0.059	0.244	4.01	0.005	0.08	19.2	316	7.00	1.97	0.8	13.2	5.96
11		0.046		3.14		0.06		247		1.54		10.3	4.66
12		0.033		2.26		0.04		178		1.11		7.41	3.36
13	0.004	0.033	0.385	3.55	0.007	0.06	9.95	92	7.05	1.10	0.8	7.37	3.34
14		0.039		4.14		0.07		107		1.29		8.61	3.91
15	0.004	0.063	0.484	8.46	0.006	0.11	4.02	70	7.12	2.09	0.6	10.5	4.75
16		0.071		9.54		0.13		79		2.36		11.8	5.36
17	0.004	0.067	0.675	12.50	0.010	0.19	5.26	97	7.11	2.22	0.8	14.8	6.72
18		0.066		12.45		0.19		97		2.21		14.8	6.69
19		0.055		10.34		0.16		81		1.84		12.3	5.56
20	0.004	0.063	0.513	8.94	0.008	0.14	4.27	74	6.92	2.09	0.6	10.5	4.74
21		0.065		9.21		0.15		77		2.15		10.8	4.89
22	0.004	0.063	0.369	6.41	0.006	0.10	2.79	48	6.65	2.08	0.4	6.95	3.15
23		0.051		5.27		0.09		40		1.71		5.71	2.59
24	0.004	0.052	0.324	4.70	0.006	0.08	2.31	34	6.50	1.74	0.8	11.6	5.27
25		0.052		4.70		0.08		34		1.74		11.6	5.27
26		0.056		5.06		0.09		36		1.87		12.5	5.66
27	0.004	0.071	0.284	5.57	0.006	0.12	2.05	40	6.52	2.35	0.4	7.84	3.56
28		0.071		5.59		0.12		40		2.36		7.87	3.57
29	0.004	0.070	0.220	4.28	0.006	0.11	2.34	45	6.61	2.33	1.0	19.4	8.82
30		0.072		4.41		0.11		47		2.40		20.0	9.08
31	0.004	0.071	0.230	4.50	0.006	0.11	2.44	48	6.75	2.35	1.2	23.5	10.66
Total	0.050	1.812	5.443	203.778	0.098	3.625	142.8	5034.9	96.21	60.31	9.800	351.2	159.3
Sample Events	14	31	14	31	14	31	14	31	14	31	14	31	31
Daily Average	0.004	0.058	0.389	6.57	0.007	0.117	10.2	162	6.87	1.95	0.70	11.3	5.14
Lab Detection Limit	0.003	0.004			0.001		0.004		0.01		0.800		

MIN 0.004 0.033 0.220 2.260 0.005 0.044 2.050 33.542 6.500 1.104 0.200 2.520 1.143
MAX 0.004 0.072 0.675 12.505 0.011 0.193 25.900 426.219 7.170 2.400 1.200 23.503 10.659

Notes:

(X mg/L) * (1 kg/10^6 mg) * (2.205 lbs/kg) * (3.785 L/gal) * (10^6 gal/Mgal) * (Y Mgal/day) = (X) * (Y) * (8.345) in lbs/day

(X lbs/day) * (1 kg/2.205 lbs) = (X) / (2.205) in kg/day

KELLOGG TUNNEL DISCHARGE

CENTRAL TREATMENT PLANT

MONTH: Mar-17

Data from SVL

DAY	LEAD (Pb)		ZINC (Zn)		CADMIUM (Cd)		MANGANESE (Mn)		pH	006 FLOW		TSS	
	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day		mgd	mg/L	lbs/day	kg/day
1		6.49		829		1.41		895		1.51		1,121	509
2	0.515	8.65	66	1,105	0.112	1.88	71	1,192	3.04	2.01	89	1,494	678
3		8.47		1,082		1.84		1,167		1.97		1,463	664
4		8.64		1,104		1.88		1,191		2.01		1,493	677
5		8.87		1,133		1.93		1,223		2.06		1,533	695
6	0.465	7.65	69	1,129	0.125	2.06	70	1,152	2.98	1.97	93	1,530	694
7		7.64		1,128		2.05		1,151		1.97		1,529	693
8		7.54		1,112		2.03		1,135		1.94		1,508	684
9	0.504	8.22	74	1,202	0.128	2.09	73	1,197	3.04	1.95	97	1,581	717
10		8.29		1,212		2.10		1,207		1.97		1,595	723
11		6.48		947		1.64		943		1.54		1,247	565
12		4.67		683		1.19		680		1.11		899	407
13	0.572	5.27	108	995	0.225	2.07	33	300	2.84	1.10	6	55	25
14		6.16		1,163		2.42		351		1.29		65	29
15		10.00		1,887		3.93		570		2.09		105	48
16	1.18	23.26	97	1,918	0.227	4.47	34	666	2.93	2.36	16	315	143
17		21.86		1,803		4.21		626		2.22		296	134
18		21.76		1,794		4.19		623		2.21		295	134
19		18.07		1,490		3.48		518		1.84		245	111
20	1.05	18.30	190	3,311	0.512	8.92	52	906	2.75	2.09	10	174	79
21		18.86		3,412		9.19		934		2.15		180	81
22		18.25		3,302		8.90		904		2.08		174	79
23	0.943	13.46	298	4,252	0.857	12.23	64	913	2.66	1.71	15	214	97
24		13.69		4,327		12.44		929		1.74		218	99
25		13.69		4,327		12.44		929		1.74		218	99
26		14.72		4,651		13.37		999		1.87		234	106
27	0.746	14.63	214	4,197	0.604	11.84	71	1,392	2.83	2.35	10	196	89
28		14.69		4,213		11.89		1,398		2.36		197	89
29		14.51		4,161		11.74		1,381		2.33		194	88
30	0.712	14.26	215	4,306	0.596	11.94	72	1,444	2.87	2.40	10	200	91
31		13.95		4,211		11.67		1,412		2.35		196	89
Total	5.98	338.24	1115.40	59705.46	2.79	148.11	467.80	26090.62	23.07	60.31	336.00	20174.08	9149.24
Sample Events	9	31	9	31	9	31	9	31	9	31	9	31	31
Daily Average	0.664	10.9	123.9	1,926	0.310	4.78	52.0	842	2.56	1.95	37	651	295

Notes:

$$(X \text{ mg/L}) * (1 \text{ kg}/10^6 \text{ mg}) * (2.205 \text{ lbs/kg}) * (3.785 \text{ L/gal}) * (10^6 \text{ gal/Mgal}) * (Y \text{ Mgal/day}) = (X) * (Y) * (8.345) \text{ lbs/day}$$

$$(X \text{ lbs/day}) * (1 \text{ kg}/2.205 \text{ lbs}) = (X) / (2.205) \text{ kg/day}$$

**PTM Effluent at Lined Storage Pond
CENTRAL TREATMENT PLANT**

Month: Mar-17

DATE	LEAD mg/L	ZINC mg/L	CADMUM mg/L	pH s.u.	TSS mg/L
03/02/17	0.015	10.2	1.01	7.43	0.2
03/16/17	0.086	10.4	1.02	7.41	4.4

**RINSATE AND TRIP BLANKS
CENTRAL TREATMENT PLANT**

Month: Mar-17

Rinsate and Trip Blank samples will be taken approximately every 20 QC events, or one each per month.

LOCATION Rinsate & Trip Blank	DATE	SAMPLE	LEAD mg/L	ZINC mg/L	CADMUM mg/L
Kellogg Tunnel Discharge		RB-03-23-17	<0.01	<0.004	<0.002
Trip Blank (D.I.water)		TB-03-23-17	<0.01	<0.004	<0.002

Bunker Hill Central Treatment Plant

Daily log March 2017

				AERATION BASIN				CLARIFIER				DISCHARGE 006				RECYCLE SG		LIME SLURRY		SLUDGE PUMP		POND PUMP		SLUDGE GUN TEST		LINED POND								
				a.m.		p.m.		a.m.		p.m.										Injection Valve								ESTIMATED						
DATE	Operators	GPM	pH	SET	pH1	grab	pH1	grab	pH2	grab	pH2	TURB	TEMP	pH3	grab	pH3	grab	TURB	FLOW	SG	GPM	SG	%solid	Closed/Open	pump #	min	ON	OFF	10' Out	20' Out	Elevation (mg)			
3/1	GF,SB,GC			8.5	8.6	8.5	8.5	8.4	7.7	7.9	8.0	8.1	0.85	40	7.3	7.4	7.2	7.2	0.66	1.51	1.031	400	1.066	10.2	225/12	3	70	#3	08:50	13:30	2271.0 (2.25mg)			
3/2	GF,SB,GC	1420	2.99	8.3	8.3	8.3	8.3	8.3	7.8	8.0	7.8	7.7	0.70	42	7.3	7.2	7.2	7.2	0.68	2.01	1.040	400	1.067	10.4	200/15	3	90			12"	8"	2270.0 (1.5mg)		
3/3	GC,GF			8.3	8.3	8.3	8.3	8.3	7.7	7.9	7.8	7.8	0.64	41	7.4	7.2	7.2	7.3	0.60	1.97	1.040	400	1.067	10.4	198/15	3	90					2270.0		
3/4	GC			8.3	8.3	8.3	8.3	8.4	7.7	8.0	7.7	7.9	0.61	44	7.4	7.3	7.4	7.2	0.58	2.01	1.041	400	1.066	10.2	192/15	3	90					2270.0		
3/5	SB			8.3	8.3	8.4	8.3	8.3	7.7	8.0	7.8	7.9	0.57	43	7.4	7.2	7.4	7.3	0.46	2.06	1.038	400	1.067	10.4	191/15	3	90					2270.0		
3/6	GF,SB	1417	3.01	8.3	8.3	8.3	8.3	8.3	7.7	7.9	7.8	7.8	0.60	43	7.3	7.2	7.3	7.2	0.50	1.97	1.040	400	1.066	10.2	188/15	3	90					2270.0		
3/7	GF,SB,GC			8.4	8.4	8.4	8.4	8.4	7.7	7.8	7.8	7.9	0.64	43	7.4	7.2	7.4	7.2	0.50	1.97	1.044	400	1.068	10.5	177/15	3	90					2270.0		
3/8	GF,SB,GC			8.4	8.4	8.4	8.4	8.4	7.8	8.0	7.9	8.0	0.65	45	7.3	7.1	7.4	7.2	0.48	1.94	1.041	400	1.065	10.1	169/15	3	90					2270.0		
3/9	GF,SB,GC	1417	3.02	8.4	8.5	8.4	8.4	8.4	7.8	8.0	7.9	7.7	0.58	44	7.4	7.3	7.3	7.2	0.50	1.95	1.042	400	1.065	10.1	166/15	3	105					2271.0 (2.25mg)		
3/10	GF,GC			8.4	8.4	8.4	8.5	8.5	7.8	7.9	7.9	8.1	0.65	46	7.4	7.1	7.4	7.1	0.52	1.97	1.043	400	1.067	10.4	162/15	3	120	#3	08:46	13:00		2271.0		
3/11	GC			8.5	8.5	8.6	8.5	8.5	7.8	8.2	7.8	8.1	0.57	43	7.4	7.3	7.4	7.1	0.49	1.54	1.026	400	1.066	10.2	194/12	3	0					2270.5 (1.87mg)		
3/12	SB			8.5	8.5	8.5	8.6	8.6	7.8	8.1	7.8	8.1	0.51	44	7.4	7.3	7.4	8.2	0.44	1.11	1.035	400	1.065	10.1	197/12	3	30					2270.5		
3/13	GF,SB	833	2.92	8.5	8.5	8.5	8.7	8.7	7.8	8.1	7.8	8.0	0.55	45	7.4	7.2	7.3	7.3	0.50	1.10	1.038	400	1.064	10.0	182/12	3	90					2271.0 (2.25mg)		
3/14	GF,GC,SB			8.5	8.3	8.3	8.4	8.4	7.8	8.2	8.1	8.0	0.55	46	7.3	7.2	7.3	7.3	0.48	1.29	1.037	400	1.062	9.7	277/20	3	90	#3	06:00	13:30		2271.0		
3/15	GF,GC,SB			8.5	8.4	8.4	8.5	8.4	7.8	8.1	7.9	8.1	0.70	41	7.4	7.3	7.3	7.3	0.47	2.09	1.036	400	1.063	9.8	179/15	3	90	#3	05:00	13:30		2271.0		
3/16	GF,GC,SB	1396	2.91	8.5	8.4	8.4	8.5	8.5	7.8	8.1	7.9	8.0	0.60	40	7.4	7.3	7.4	7.3	0.50	2.36	1.038	400	1.063	9.8	152/17	3	90	#3	06:00	13:30		2270.5 (1.87mg)		
3/17	GC,GF			8.5	8.5	8.5	8.5	8.5	7.7	7.8	7.8	7.9	0.60	37	7.4	7.3	7.4	7.3	0.56	2.22	1.037	400	1.066	10.2	200/25	3	90	#3	05:15	13:30		2270.5		
3/18	GC			8.5	8.5	8.5	8.6	8.6	7.7	8.0	7.7	8.0	0.50	40	7.3	7.4	7.3	7.2	0.48	2.21	1.037	400	1.069	10.7	111/25	3	90					2270.0 (1.5mg)		
3/19	GF			8.6	8.5	8.5	8.6	8.6	7.5	7.9	7.8	7.8	0.60	40	7.3	7.3	7.3	7.2	0.55	1.84	1.037	400	1.073	11.3	113/25	3	60	#3	06:00	12:00	32"	18"	2269.5 (1.25mg)	
3/20	GF,SB	1292	2.78	8.6	8.7	8.7	8.4	8.5	7.6	7.7	7.6	7.9	0.60	39	7.3	7.3	7.4	7.2	0.50	2.09	1.041	400	1.099	15.0	220/25	3	120	#3	06:45	13:00	32"	18"	2269.5	
3/21	GF,SB,GC			8.6	8.7	8.6	8.6	8.6	7.5	7.8	7.8	7.8	0.70	43	7.3	7.4	7.3	7.4	0.68	2.15	1.035	400	1.106	16.0	200/25	3	120	#3	06:30	12:00	50"	34"	2269.0 (1.0mg)	
3/22	SB, GC			8.6	8.5	8.5	8.5	8.5	7.6	7.7	7.7	8.1	0.80	43	7.3	7.2	7.3	7.3	0.68	2.08	1.034	400	1.080	12.3	94/33	3	300					62"	48"	2269.0
3/23	SB, GC	1310	2.67	8.6	8.7	8.7	8.6	8.6	7.7	8.0	7.7	7.9	0.63	45	7.3	7.2	7.3	7.2	0.57	1.71	1.032	400	1.076	11.7	11									

Bunker Hill Central Treatment Plant																												
Spring Run Off 2017																												
DATE	OP	Time	AERATION BASIN			CLARIFIER			DISCHARGE 006			RECYCLE SG			LIME SLURRY			SLUDGE PUMP #1		SLUDGE PUMP #3		SLUDGE GUN TEST		Floc Pump		KELLOGG TUNNEL		
			SET	pH1	grab	pH2	grab	TURB	pH3	grab	TURB	SG	GPM	SG	%solid	Lime Injection Valve	1000 GPM	600 GPM	ON	OFF	ON	OFF	10' Out	20' Out	Setting	STAFF	GPM	pH
03/19/17	GF	6:10	8.6	8.5	8.5	7.5	7.9	0.60	7.3	7.3	0.55	1.037	400	1.073	11.1	113/25			11:00	12:00	32"	18"	1.6					
		13:30			8.6	8.6	7.8	7.8	0.60	7.2	7.2					125/25												
03/20/17	GF	5:15	8.6	8.7	8.7	7.6	7.7	0.60	7.3	7.3	0.50	1.041	400	1.099	15.0	210/25			6:30	7:30	36"	18"	1.6				1292	2.78
		13:00	8.6	8.4	8.5	7.6	7.9	0.75	7.4	7.2	0.60	1.035	400	1.106	16.0	200/25			12:20	13:10								
03/21/17	SB	5:00	8.6	8.6	8.6	7.5	7.8	0.70	7.3	7.4	0.68	1.035	400	1.106	16.0	200/25			10:50	11:50	50"	34"	1.6					2.67
		12:00														13:00	14:00		50"	30"								
03/22/17	GC	5:00	8.5	8.5	8.5	7.6	7.7	0.80	7.3	7.2	0.68	1.034	400	1.080	12.3	94/33			5:10	7:10	62"	48"	2.5				1250	
		7:32	8.6	8.5												100/33			7:32	9:32	55"	28"	2.5					
03/23/17	GC	10:00	8.6	8.5												100/37					33"	18"	2.5					
		13:00	8.6	8.5	8.5	7.7	8.1	0.72	7.3	7.3	0.71	1.033	400	1.075	11.6	100/37			13:00	14:00	45"	28"	2.5					
03/24/17	SB	18:00	8.6	8.6												107/37					47"	30"	1.5					
		12:00														120/33												
03/25/17	GC	5:00	8.6	8.6	8.6	7.7	8.0	0.63	7.3	7.2	0.57	1.032	400	1.032	11.7	114/37			6:00	10:00	64"	48"	2.5				1310	2.67
		10:00	8.6	8.7	8.7	7.7	8.1	0.71								120/37					20"	12"	2.5					
03/26/17	GC	12:00	8.6	8.6	8.6	7.9	8.1	0.81								113/37					28"	12"	2.5					
		14:30	8.6	8.6	8.6	7.7	7.9	0.81	7.3	7.2	0.65	1.029	400			114/37					30"	12"	1.5					
03/27/17	GC	18:25	8.6	8.7	8.7	7.9	7.8	0.89	7.3	7.2	0.70	1.031	400			118/37					40"	18"	1.5					
		18:30	8.6	8.6	8.6	7.8	7.8	0.95	7.3	7.1	0.64	1.029	400	1.079	12.2	123/37			6:40	10:40	63"	38"	2.5				1327	
03/28/17	GC	10:45	8.6	8.6	8.6	7.9	8.0									122/37					28"	12"	2.5					
		12:30	8.6	8.5	8.6	7.8	7.8	0.85	7.3	7.2	0.56	1.029	400			118/37					32"	12"	2.5					
03/29/17	GC	14:00	8.6	8.7	8.7	7.7	7.8	0.69	7.3	7.2	0.61	1.030	400			125/37					33"	12"	2.5					
		18:00	8.6	8.6	8.7	7.8	8.1	0.69	7.3	7.1	0.62	1.029	400			123/37					40"	26"	1.5					
03/30/17	GC	5:45	8.6	8.6	8.6	7.9	8.0	0.62	7.3	7.3	0.58	1.031	400	1.078	12.0	132/37			5:50	9:50	60"	32"	2.5				1303	
		10:00	8.6	8.6	8.7	8.7	8.0	0.66	7.3	7.1	0.60	1.028	400	1.077	11.9	129/37			6:30	10:30	59"	40"	2.5					
03/31/17	GC	12:00	8.6	8.6	8.6	7.8	8.0	0.64	7.3	7.1	0.64	1.030	400	1.078	12.0	129/37					22"	12"	2.5					
		14:30	8.6	8.6	8.6	7.8	8.1	0.66	7.3	7.2	0.55	1.028	400	1.078	12.0	129/37					25"	16"	2.5					
04/01/17	GC	14:30	8.6	8.6	8.6	7.8	8.1	0.59	7.4	7.2	0.57	1.028	400	1.082	12.6	140/37					27"	19"	1.5					
		16:00	8.5	8.5	8.5	7.7	8.0	0.63	7.4	7.4	0.58	1.029	400			133/33					31"	21"	1.5					
04/02/17	SB	5:50	8.5	8.5	8.5	7.6	8.1	0.78	7.3	7.2	0.69	1.028	400	1.078	12.0	132/33		</										

CENTRAL TREATMENT PLANT**MISCELLANEOUS FLOWS****Month :** Mar-17

Date	KT Flow Meter Reading
2/28/2017	0
3/31/2017	58,977,410
Total	58,977,410

Date	006 Flow Meter Reading
2/28/2017	0
3/31/2017	60,308,200
Total	60,308,200

Sweeny Pump Station Reading				
Date	#1 Pump	620 gpm	#2 Pump	500 gpm
2/28/2017	170.0	Hours	785.0	Hours
3/31/2017	170.0	Hours	785.0	Hours
Total Hours	0.0	Hours	0.0	Hours
Total Flow for 004/Sweeny For The Month =	0		0	Gallons

Date	Lined Storage Pond Water Level			
2/28/2017	2,250,000	gal	Elev. =	2271.0
3/31/2017	1,250,000	gal	Elev. =	2269.5

Lined Storage Pond Influent Flows**PTM Discharge Flow**

Date	Flow (gpm)
03/02/17	15.0
03/16/17	30.0

Old Mine Line Discharge Flow

Date	Flow (gpm)
03/02/17	4.0
03/16/17	25.0

KELLOGG TUNNEL ANNUAL DISCHARGE FLOWS 2000-2009										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Jan.	61,000,000	61,677,510	54,606,100	53,066,890	52,223,080	53,150,000	56,050,900	56,281,000	53,465,820	50,936,960
Feb.	57,600,000	45,584,000	52,840,000	46,493,470	48,306,920	49,860,000	51,188,000	50,511,300	49,282,209	48,146,111
March	60,730,000	57,740,360	50,452,060	60,162,290	59,852,720	58,073,000	56,332,830	65,443,650	54,578,130	61,712,540
April	68,680,000	54,846,000	65,583,230	63,335,350	50,715,310	53,775,350	72,039,280	66,636,500	61,690,530	63,055,350
May	97,719,900	57,501,901	76,082,410	63,335,350	53,245,000	54,181,650	72,027,000	63,203,308	86,680,760	70,233,580
June	69,800,000	55,835,590	67,299,960	59,532,434	50,451,170	51,750,000	68,385,600	57,981,410	82,622,590	64,623,180
July	63,698,850	53,652,330	64,820,120	66,252,746	56,538,980	55,255,000	64,054,000	58,282,900	66,324,500	61,535,000
Aug.	66,707,120	45,289,000	58,212,940	62,074,750	52,002,140	49,970,000	64,621,000	55,335,900	65,168,620	56,446,670
Sept.	55,797,530	50,276,020	60,140,460	43,789,000	49,208,020	49,987,000	54,515,270	50,471,870	61,074,020	57,006,430
Oct.	60,424,720	50,660,840	54,485,871	52,869,290	59,601,690	52,807,000	57,610,030	50,086,330	58,666,300	55,830,000
Nov.	53,408,660	50,660,840	51,072,259	47,600,000	51,948,000	50,722,600	55,191,700	50,779,040	52,041,780	54,956,800
Dec.	56,414,870	53,464,780	56,034,000	56,413,080	56,770,000	54,904,400	60,486,900	53,716,210	55,727,260	54,542,700
Totals	771,981,650	637,189,171	711,629,410	674,924,650	640,863,030	634,436,000	732,502,510	678,729,418	747,322,519	699,025,321

KELLOGG TUNNEL ANNUAL DISCHARGE FLOWS 2010-2019										
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Jan.	55,503,180	61,797,170	58,434,610	61,855,400	57,478,450	58,440,540	52,196,730	49,352,650		
Feb.	50,819,910	54,556,227	57,763,170	59,383,290	54,607,950	59,767,470	53,694,400	53,675,440		
March	54,691,420	61,373,630	67,236,650	66,264,780	65,396,350	64,468,230	63,967,920	58,977,410		
April	56,255,340	65,687,340	81,233,630	69,619,100	65,618,770	63,056,840	63,323,620			
May	58,825,640	84,365,390	86,826,340	71,496,380	80,598,590	61,898,200	58,147,240			
June	56,770,200	79,985,540	83,440,990	64,663,900	65,623,330	56,368,540	53,149,810			
July	56,727,510	79,346,330	74,315,690	62,844,790	63,425,030	55,655,000	56,521,710			
Aug.	56,239,370	70,377,570	68,986,900	58,459,380	61,486,270	55,316,100	53,293,430			
Sept.	54,109,980	60,404,280	62,270,300	58,097,500	56,279,590	53,890,000	49,796,420			
Oct.	55,480,200	62,403,480	59,991,850	58,325,780	60,659,850	52,082,800	52,417,120			
Nov.	54,856,880	58,430,700	57,184,220	56,215,000	55,065,100	49,812,540	53,815,710			
Dec.	54,607,330	58,617,700	61,750,390	56,932,530	59,770,540	51,521,900	52,063,110			
Totals	664,886,960	797,345,357	819,434,740	744,157,830	746,009,820	682,278,160	662,387,220	162,005,500	0	0

Yellow indicates record monthly flow as well as record annual flow

KELLOGG TUNNEL ZINC DATA

Month	Concentration (mg/L)													
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Jan.		86	81	79	63	70	61	72	57	68	41	46	50	53
Feb.		86	91	96	55	72	57	95	58	68	41	68	52	50
March		94	116	86	65	68	53	86	58	69	58	81	63	124
April		98	121	140	85	80	50	137	176	86	107	92	115	
May		105	231	179	318	136	57	377	215	150	177	87	138	
June		107	182	118	271	143	68	347	164	106	131	78	108	
July		90	144	111	198	117	75	181	136	87	87	75	81	
Aug.		87	112	92	132	94	79	130	110	86	76	66	76	
Sept.		84	107	80	107	76	81	132	107	75	66	63	68	
Oct.	59	81	100	88	99	75	70	86	70	67	63	54	52	
Nov.	66	79	88	88	104	63	57	95	71	70	55	44	52	
Dec.	67	62	78	65	76	59	61	88	69	54	49	55	50	
average	64	88	121	102	131	88	64	152	108	82	79	67	75	76
lime usage (tons/day)	2.59	3.23	2.76	4.78	3.24	2.16	4.31	3.93	2.46	2.70	1.99	1.93		
Zinc Conc. Increase/Decrease	37%	-16%	29%	-33%	-27%	138%	-29%	-24%	-4%	-15%	12%			
Lime Usage Increase/Decrease	25%	-15%	73%	-32%	-33%	100%	-9%	-37%	10%	-26%	-3%			

Bunker Hill Sludge Pond
Sludge Staff Gauge Reading Summary

Date	Sludge Level (feet)	Estimated Sludge Elevation	Estimated Remaining Height to Road (feet)
05/19/00	0.45		
04/16/02	0.80		
05/28/02	1.10		
06/13/02	1.65		
07/01/02	1.70		
07/16/02	1.70		
08/27/02	1.70		
10/01/02	1.70		
11/06/02	1.75		
01/06/03	1.80		
02/19/03	1.90		
02/19/03	1.90		
03/31/03	2.60		
04/01/03	2.60		
05/07/03	2.80		
09/19/03	2.65		
01/01/04	2.70		
03/22/04	2.36		
04/29/04	2.50	2311	11.0
08/09/05	2.28	2310.8	11.2
09/30/06	2.85	2311.4	10.7
03/20/07	2.80	2311.3	10.7
6/30/2007	2.90	2311.4	10.6
4/30/2009	5.00	2313.5	8.50
10/31/2009	5.20	2313.7	8.30
7/31/2010	5.25	2313.8	8.25
3/31/2011	5.58	2314.1	7.92
4/30/2011	5.75	2314.3	7.75
5/30/2011	8.60	2317.1	4.90
7/5/2011	7.20	2315.7	6.30
9/26/2011	6.80	2315.3	6.70
2/4/2013	7.80	2316.3	5.70
4/30/2013	8.00	2316.5	5.50
5/12/2014	7.95	2316.5	5.55
11/20/2014	8.26	2316.8	5.24
4/20/2015	8.50	2317.0	5.00
4/1/2016	8.55	2317.1	4.95
9/1/2016	8.50	2317.0	5.00
3/20/2017	8.30	2316.8	5.20
3/28/2017	8.45	2317.0	5.05
6157	8.00	Total Change, Days and Feet	
Note 3	0.47	Average Rise Per Year (Includes Lined Pond Cleanout), feet	
	5.05	Estimated average remaining total height to perimeter road, feet	
	2.0	Assumed desired end-of-life freeboard, feet	
	3.1	Estimated available storage height, feet	
	6.4	Estimated Remaining Life (years)	
	8/31/2023		

Notes:

1) Pond perimeter road centerline elevation = 2322.0 feet from CIA as-builts Drawing C-28

Bunker Hill Superfund Site							
Kellogg, Idaho							
Central Treatment Plant Review							
Month: Mar-17							
SAMPLE	DATE	PARAMETER	VALUE	QC/dup	UNITS	PRECISION	MATRIX SPIKE DATA
LOCATION			RESULTS			% RPD	% RECOVERY
006/CTP Outfall	03/01/17	Cadmium	0.006	0.006	mg/L	-1.6%	98%
		Lead	0.004	0.004	mg/L	0.0%	91%
Lab Duplicate		Manganese	21.5	21.5	mg/L	0.0%	111%
		Zinc	0.326	0.327	mg/L	-0.3%	89%
		pH	6.99	6.98	s.u.	0.1%	
		TSS	0.2	0.4	mg/L	-66.7%	
PTM Discharge	03/02/17	Cadmium	1.01	1.01	mg/L	0.0%	
		Lead	0.015	0.016	mg/L	-7.3%	
QC Sample		Manganese			mg/L		
		Zinc	10.2	10.1	mg/L	1.0%	
		pH	7.43	7.24	s.u.	2.6%	
		TSS	0.2	0.2	mg/L	0.0%	
Performance Evaluation Sample (CTPXX-03-02-17)	03/02/17	Cadmium	0.056	0.050	mg/L	10.4%	
		Lead	0.302	0.300	mg/L	0.7%	
		Zinc	0.709	0.730	mg/L	-2.9%	
					mg/L		
CTPXX-02-02-17	03/02/17	Cadmium	0.055	0.056	mg/L	-2.0%	98%
		Lead	0.302	0.303	mg/L	-0.3%	97%
Lab Duplicate		Manganese	0.002	0.002	mg/L	0.0%	101%
		Zinc	0.709	0.719	mg/L	-1.4%	96%
006/CTP Outfall	03/03/17	Cadmium	0.011	0.011	mg/L	0.0%	102%
		Lead	0.004	0.004	mg/L	0.0%	95%
Lab Duplicate		Manganese	16.6	16.8	mg/L	-1.2%	
		Zinc	0.548	0.552	mg/L	-0.7%	95%
		pH	7.17	7.20	s.u.	-0.4%	
		TSS	0.8	0.8	mg/L	0.0%	
006/CTP Outfall	03/06/17	Cadmium	0.008	0.008	mg/L	0.0%	100%
		Lead	0.004	0.004	mg/L	0.0%	92%
Lab Duplicate		Manganese	25.9	26.4	mg/L	-1.9%	
		Zinc	0.475	0.478	mg/L	-0.6%	93%
		pH	6.92	6.94	s.u.	-0.3%	
		TSS	0.6	0.6	mg/L	0.0%	
Kellogg Tunnel	03/06/17	Cadmium	0.125	0.127	mg/L	-1.6%	102%
		Lead	0.465	0.472	mg/L	-1.5%	95%
Lab Duplicate		Manganese	70.0	70.8	mg/L	-1.1%	105%
		Zinc	68.6	69.0	mg/L	-0.6%	
		pH			s.u.		
		TSS			mg/L		
006/CTP Outfall	03/08/17	Cadmium	0.007	0.007	mg/L	1.5%	95%
		Lead	0.004	0.004	mg/L	0.0%	89%
Lab Duplicate		Manganese	24.2	23.5	mg/L	2.9%	
		Zinc	0.366	0.361	mg/L	1.4%	86%
		pH	6.90	6.88	s.u.	0.3%	
		TSS	0.8	0.8	mg/L	0.0%	
Performance	03/09/17	Cadmium	0.059	0.050	mg/L	16.3%	

SAMPLE	DATE	PARAMETER	VALUE	QC/dup	UNITS	PRECISION	MATRIX SPIKE DATA
LOCATION			RESULTS			% RPD	% RECOVERY
Evaluation		Lead	0.317	0.300	mg/L	5.5%	
Sample		Zinc	0.779	0.730	mg/L	6.5%	
(CTPXX-03-09-17)					mg/L		
CTPXX-03-09-17	03/09/17	Cadmium	0.059	0.059	mg/L	-0.5%	111%
		Lead	0.317	0.322	mg/L	-1.6%	117%
Lab Duplicate		Manganese	0.002	0.002	mg/L	0.0%	110%
		Zinc	0.779	0.760	mg/L	2.5%	112%
006/CTP Outfall	03/10/17	Cadmium	0.005	0.005	mg/L	-2.1%	
		Lead	0.004	0.004	mg/L	0.0%	
QC Sample		Manganese	19.2	19.0	mg/L	1.0%	
		Zinc	0.244	0.250	mg/L	-2.4%	
		pH	7.00	7.02	s.u.	-0.3%	
		TSS	0.8	1.0	mg/L	-22.2%	
006/CTP Outfall	03/13/17	Cadmium	0.007	0.006	mg/L	4.6%	102%
		Lead	0.004	0.004	mg/L	0.0%	95%
Lab Duplicate		Manganese	10.0	9.93	mg/L	0.2%	93%
		Zinc	0.385	0.379	mg/L	1.6%	98%
		pH	7.05	7.01	s.u.	0.6%	
		TSS	0.8	0.8	mg/L	0.0%	
Kellogg Tunnel	03/13/17	Cadmium	0.225	0.228	mg/L	-1.3%	100%
		Lead	0.572	0.580	mg/L	-1.4%	96%
Lab Duplicate		Manganese	32.6	33.0	mg/L	-1.2%	81%
		Zinc	108	114	mg/L	-5.4%	
		pH			s.u.		
		TSS			mg/L		
006/CTP Outfall	03/15/17	Cadmium	0.006	0.006	mg/L	1.6%	101%
		Lead	0.004	0.004	mg/L	0.0%	96%
Lab Duplicate		Manganese	4.02	3.89	mg/L	3.3%	83%
		Zinc	0.484	0.475	mg/L	1.9%	97%
		pH	7.12	7.12	s.u.	0.0%	
		TSS	0.6	0.6	mg/L	0.0%	
Performance	03/16/17	Cadmium	0.057	0.050	mg/L	12.2%	
Evaluation		Lead	0.295	0.300	mg/L	-1.7%	
Sample		Zinc	0.829	0.730	mg/L	12.7%	
(CTPXX-03-16-17)					mg/L		
CTPXX-03-16-17	03/16/17	Cadmium	0.057	0.057	mg/L	-0.4%	98%
		Lead	0.295	0.298	mg/L	-1.0%	96%
Lab Duplicate		Manganese	0.002	0.002	mg/L	0.0%	100%
		Zinc	0.829	0.826	mg/L	0.4%	95%
006/CTP Outfall	03/17/17	Cadmium	0.010	0.009	mg/L	11.2%	101%
		Lead	0.004	0.004	mg/L	0.0%	97%
Lab Duplicate		Manganese	5.26	4.74	mg/L	10.4%	
		Zinc	0.675	0.616	mg/L	9.1%	93%
		pH	7.11	7.09	s.u.	0.3%	
		TSS	0.8	0.8	mg/L	0.0%	
006/CTP Outfall	03/20/17	Cadmium	0.008	0.009	mg/L	-7.1%	101%
		Lead	0.004	0.004	mg/L	0.0%	94%
Lab Duplicate		Manganese	4.27	4.35	mg/L	-1.9%	92%
		Zinc	0.513	0.526	mg/L	-2.5%	94%
		pH	6.92	6.90	s.u.	0.3%	

SAMPLE	DATE	PARAMETER	VALUE	QC/dup	UNITS	PRECISION	MATRIX SPIKE DATA
LOCATION			RESULTS			% RPD	% RECOVERY
		TSS	0.6	0.6	mg/L	0.0%	
Kellogg Tunnel	03/20/17	Cadmium	0.512	0.505	mg/L	1.4%	102%
		Lead	1.05	1.04	mg/L	1.0%	97%
Lab Duplicate		Manganese	52.0	51.8	mg/L	0.4%	95%
		Zinc	190	188	mg/L	1.1%	
		pH			s.u.		
		TSS			mg/L		
006/CTP Outfall	03/22/17	Cadmium	0.006	0.006	mg/L	-3.3%	99%
		Lead	0.004	0.004	mg/L	0.0%	89%
Lab Duplicate		Manganese	2.79	2.79	mg/L	0.0%	96%
		Zinc	0.4	0.4	mg/L	-0.8%	93%
		pH	6.65	6.67	s.u.		
		TSS	0.4	0.6	mg/L		
Performance Evaluation Sample	03/23/17	Cadmium	0.053	0.050	mg/L	6.6%	
(CTPXX-03-23-17)		Lead	0.285	0.300	mg/L	-5.1%	
		Zinc	0.784	0.730	mg/L	7.1%	
					mg/L		
CTPXX-03-23-17	03/23/17	Cadmium	0.053	0.054	mg/L	-1.1%	95%
		Lead	0.285	0.281	mg/L	1.4%	94%
Lab Duplicate		Manganese	0.002	0.002	mg/L	0.0%	95%
		Zinc	0.784	0.784	mg/L	0.0%	94%
006/CTP Outfall	03/24/17	Cadmium	0.006	0.006	mg/L	-3.4%	99%
		Lead	0.004	0.004	mg/L	0.0%	89%
Lab Duplicate		Manganese	2.31	2.31	mg/L	0.0%	95%
		Zinc	0.324	0.321	mg/L	0.9%	89%
		pH	6.50	6.52	s.u.	-0.3%	
		TSS	0.8	0.8	mg/L	0.0%	
006/CTP Outfall	03/27/17	Cadmium	0.006	0.006	mg/L	0.0%	99%
		Lead	0.004	0.004	mg/L	0.0%	91%
Lab Duplicate		Manganese	2.05	2.07	mg/L	-1.0%	92%
		Zinc	0.284	0.284	mg/L	0.0%	90%
		pH	6.52	6.56	s.u.	-0.6%	
		TSS	0.4	0.4	mg/L	0.0%	
Kellogg Tunnel	03/27/17	Cadmium	0.604	0.619	mg/L	-2.5%	95%
		Lead	0.746	0.761	mg/L	-2.0%	89%
Lab Duplicate		Manganese	71.0	72.5	mg/L	-2.1%	
		Zinc	214	215	mg/L	-0.5%	
		pH	6.52	6.56	s.u.		
		TSS	0.4	0.4	mg/L		
006/CTP Outfall	03/29/17	Cadmium	0.006	0.006	mg/L	0.0%	100%
		Lead	0.004	0.004	mg/L	0.0%	93%
Lab Duplicate		Manganese	2.34	2.32	mg/L	0.9%	94%
		Zinc	0.220	0.215	mg/L	2.3%	94%
		pH	6.61	6.60	s.u.	0.2%	
		TSS	1.0	1.0	mg/L	0.0%	

Bunker Hill Superfund Site							
Kellogg, Idaho							
Central Treatment Plant Review							
Month: Mar-17							
CONCENTRATION (mg/L)							
SAMPLE	DATE	PARAMETER	SPIKE	DUPLICATE	SPIKE	PRECISION	
LOCATION			ADDED	RESULT	RESULT	% RPD	
006/CTP Outfall	03/01/17	Cadmium	1.00	0.993	0.989	0.4%	
MS/MSD		Lead	1.00	0.916	0.912	0.5%	
		Manganese	1.00	22.3	22.6	1.6%	
		Zinc	1.00	1.22	1.21	0.3%	
PE Sample	03/02/17	Cadmium	1.00	1.04	1.04	0.1%	
MS/MSD		Lead	1.00	1.27	1.27	0.2%	
CTPXX-03-02-17		Manganese	1.00	1.03	1.01	1.2%	
		Zinc	1.00	1.67	1.67	0.3%	
006/CTP Outfall	03/03/17	Cadmium	1.00	1.02	1.03	0.7%	
MS/MSD		Lead	1.00	0.942	0.946	0.4%	
		Manganese	1.00	17.7	17.9	0.8%	
		Zinc	1.00	1.49	1.50	0.4%	
006/CTP Outfall	03/06/17	Cadmium	1.00	1.01	1.00	0.4%	
MS/MSD		Lead	1.00	0.923	0.921	0.3%	
		Manganese	1.00	27.3	26.7	2.2%	
		Zinc	1.00	1.14	1.40	0.5%	
Kellogg Tunnel	03/06/17	Cadmium	1.00	1.17	1.15	2.0%	
MS/MSD		Lead	1.00	1.45	1.42	2.5%	
		Manganese	1.00	71.4	71.1	0.5%	
		Zinc	1.00	68.9	69.2	0.5%	
006/CTP Outfall	03/08/17	Cadmium	1.00	0.953	0.959	0.6%	
MS/MSD		Lead	1.00	0.882	0.886	0.5%	
		Manganese	1.00	24.1	24.0	0.3%	
		Zinc	1.00	1.22	1.23	0.1%	
PE Sample	03/09/17	Cadmium	1.00	1.09	1.17	7.2%	
MS/MSD		Lead	1.00	1.37	1.48	7.9%	
CTPXX-03-09-17		Manganese	1.00	1.03	1.10	7.2%	
		Zinc	1.00	1.76	1.89	7.2%	
006/CTP Outfall	03/10/17	Cadmium	1.00	1.03	1.04	0.8%	
MS/MSD		Lead	1.00	0.988	0.987	0.1%	
		Manganese	1.00	20.9	21.2	1.3%	
		Zinc	1.00	1.22	1.22	0.4%	
006/CTP Outfall	03/13/17	Cadmium	1.00	1.02	1.03	0.9%	
MS/MSD		Lead	1.00	0.943	0.954	1.1%	
		Manganese	1.00	10.8	10.9	0.7%	
		Zinc	1.00	1.34	1.37	1.8%	
Kellogg Tunnel	03/13/17	Cadmium	1.00	1.23	1.23	0.2%	
MS/MSD		Lead	1.00	1.54	1.53	0.2%	
		Manganese	1.00	33.3	33.4	0.5%	
		Zinc	1.00	110	111	0.8%	
006/CTP Outfall	03/15/17	Cadmium	1.00	1.03	1.02	1.0%	
MS/MSD		Lead	1.00	0.975	0.960	1.6%	
		Manganese	1.00	4.95	4.85	2.1%	
						Sample conc. >> spike level	

		Zinc	1.00	1.47	1.47	1.6%		
PE Sample	03/16/17	Cadmium	1.00	1.03	1.04	0.9%		
MS/MSD		Lead	1.00	1.25	1.26	0.9%		
CTPXX-03-16-17		Manganese	1.00	1.00	1.00	0.8%	Sample conc. >> spike level	
		Zinc	1.00	1.75	1.78	1.4%		
006/CTP Outfall	03/17/17	Cadmium	1.00	1.05	1.02	3.3%		
MS/MSD		Lead	1.00	1.01	0.974	3.5%		
		Manganese	1.00	5.81	5.76	0.7%	Sample conc. >> spike level	
		Zinc	1.00	1.69	1.16	5.0%		
006/CTP Outfall	03/20/17	Cadmium	1.00	0.999	1.02	1.7%		
MS/MSD		Lead	1.00	0.929	0.939	1.1%		
		Manganese	1.00	5.20	5.19	0.3%	Sample conc. >> spike level	
		Zinc	1.00	1.43	1.45	1.3%		
Kellogg Tunnel	03/20/17	Cadmium	1.00	1.54	1.54	0.1%		
MS/MSD		Lead	1.00	2.02	2.02	0.1%		
		Manganese	1.00	54.5	53.0	2.9%	Sample conc. >> spike level	
		Zinc	1.00	197	194	1.5%		
006/CTP Outfall	03/22/17	Cadmium	1.00	0.996	0.995	0.2%		
MS/MSD		Lead	1.00	0.907	0.894	1.4%		
		Manganese	1.00	3.74	3.75	0.3%	Sample conc. >> spike level	
		Zinc	1.00	1.33	1.30	2.6%		
PE Sample	03/23/17	Cadmium	1.00	1.00	1.00	0.0%		
MS/MSD		Lead	1.00	1.23	1.22	0.5%		
CTPXX-03-23-17		Manganese	1.00	0.946	0.945	0.2%	Sample conc. >> spike level	
		Zinc	1.00	1.73	1.72	0.4%		
006/CTP Outfall	03/24/17	Cadmium	1.00	0.996	0.991	0.5%		
MS/MSD		Lead	1.00	0.890	0.885	0.6%		
		Manganese	1.00	3.32	3.26	1.8%	Sample conc. >> spike level	
		Zinc	1.00	1.22	1.21	0.4%		
Kellogg Tunnel	03/27/17	Cadmium	1.00	1.58	1.56	1.3%		
MS/MSD		Lead	1.00	1.66	1.64	1.0%		
		Manganese	1.00	73.6	72.5	1.4%	Sample conc. >> spike level	
		Zinc	1.00	220	214	2.7%		
006/CTP Outfall	03/27/17	Cadmium	1.00	0.986	0.995	0.9%		
MS/MSD		Lead	1.00	0.905	0.913	0.8%		
		Manganese	1.00	2.92	2.97	1.6%	Sample conc. >> spike level	
		Zinc	1.00	1.18	1.19	0.8%		
006/CTP Outfall	03/29/17	Cadmium	1.00	1.02	1.01	1.5%		
MS/MSD		Lead	1.00	0.942	0.927	1.7%		
		Manganese	1.00	3.34	3.28	1.9%	Sample conc. >> spike level	
		Zinc	1.00	1.18	1.16	2.0%		
PE Sample	03/30/17	Cadmium	1.00	0.980	0.983	0.3%		
MS/MSD		Lead	1.00	1.20	1.21	0.3%		
CTPXX-03-30-17		Manganese	1.00	0.925	0.941	1.7%	Sample conc. >> spike level	
		Zinc	1.00	1.7	1.7	0.5%		
006/CTP Outfall	03/31/17	Cadmium	1.00	0.996	1.00	0.8%		
MS/MSD		Lead	1.00	0.905	0.909	0.4%		
		Manganese	1.00	3.33	3.35	0.5%	Sample conc. >> spike level	
		Zinc	1.00	1.16	1.16	0.3%		

USACE PRIME CONTRACTOR
Monthly Record of Work-Related Injuries/Illnesses & Exposure

US Army Corps of Engineers
Month March 2017
Page 1 of 2

In accordance with the provisions of EM 380-1-1, Section C, Paragraph 61, D Accidents Reporting and Record-keeping, para 61-10, you (the Prime Contractor) shall provide a monthly record of all exposures and recordable injuries and illnesses that occur during your work (including work performed by Prime Contractor and its sub-contractors) as follows:

Records shall include work-related injuries and illnesses that result from exposure to physical agents listed below. Definitions of terms used in this section are contained in 29 CFR Part 1904. If the requirements of OSHA 300 Log and require by OSHA, Contractor shall furnish the required information to USACE. USACE will forward the required information to USACE Report of Accidents (Form 380-1-1) to USACE Office of Health, Safety and Occupational Health

Report of Recordable Accidents. You are not sure whether a case is recordable, call your local Safety and Occupational Health Officer for help.

Contractor	Date Employee began work	Where the injury or illness occurred	Days away from work	Days away from work due to other than job transfer or resignation	Days away from work due to other than job transfer or resignation (days)	Number of days
USACE	Aug. 2016	At work	0	0	0	0
Other Class Holder	Aug. 2016	At work	0	0	0	0

No accidents reported

USACE Command	Contractor Name	Contract Number	Project Title	City & State	USACE Office
Seattle District	Fenton Construction Inc.	WA1207115-C-0008	De-Bridge Reconstruction Project HI	Nelson, WA 98343	De-Bridge Environmental Project Office

Employee Name	Name of Person Submitting Report	Date:	0	0	0	0	0	0	0	0	0
Matthew Holden	Matthew Holden	Date To Date: 1/1/17 to 3/31/17	Signature: <u>Matthew Holden</u>	Date: <u>4/3/17</u>							

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: March 02, 2017

Inspected By:

Gary Coast, Steve Brunner

Item Inspected	Condition	Comments	
Channel Sections and Joints	Good / Poor	Check for cracks	Ok
Channel Inlet Connection @ KT	Good / Poor	Check for cracks	Ok
Channel Outlet/Pipeline Inlet	Good / Poor	Check for cracks	Ok
Channel Bottom (during low flows)	Good / Poor		Ok
Bottom Joints (during low flows)	Good / Poor		Ok
Trash Rack Assembly Rail Units	Good / Poor	Check for corrosion and bolt tightness	Ok
Trash Racks	Good / Poor	Removed debris from trash racks	
Parshall Flume	Good / Poor	Check fiberglass and joint connections	Ok

General Comments:

Bunker mine has one pump operating at this time.

The Kellogg Tunnel flow at this time is 2.04 mgd (1420 gpm), pH at this time is 2.99

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: March 09, 2017

Inspected By:

Gary Coast, Steve Brunner

Item Inspected	Condition	Comments	
Channel Sections and Joints	Good / Poor	Check for cracks	Ok
Channel Inlet Connection @ KT	Good / Poor	Check for cracks	Ok
Channel Outlet/Pipeline Inlet	Good / Poor	Check for cracks	Ok
Channel Bottom (during low flows)	Good / Poor		Ok
Bottom Joints (during low flows)	Good / Poor		Ok
Trash Rack Assembly Rail Units	Good / Poor	Check for corrosion and bolt tightness	Ok
Trash Racks	Good / Poor	Removed debris from trash racks	
Parshall Flume	Good / Poor	Check fiberglass and joint connections	Ok

General Comments:

The Kellogg Tunnel flow at this time is 1.94 mgd (1350 gpm), pH at this time is 2.85.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

Operators collected no sediment from the flume area.

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: March 16, 2017

Inspected By:

Gary Coast, Steve Brunner

Item Inspected	Condition	Comments	
Channel Sections and Joints	Good / Poor	Check for cracks	Ok
Channel Inlet Connection @ KT	Good / Poor	Check for cracks	Ok
Channel Outlet/Pipeline Inlet	Good / Poor	Check for cracks	Ok
Channel Bottom (during low flows)	Good / Poor		Ok
Bottom Joints (during low flows)	Good / Poor		Ok
Trash Rack Assembly Rail Units	Good / Poor	Check for corrosion and bolt tightness	Ok
Trash Racks	Good / Poor	Removed debris from trash racks	
Parshall Flume	Good / Poor	Check fiberglass and joint connections	Ok

General Comments:

The Kellogg Tunnel flow at this time is 2.01 mgd (1396 gpm), pH at this time is 2.91.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

Operators removed no sediment from the flume area during this cleaning event.

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: March 23, 2017

Inspected By:

Gary Coast, Steve Brunner

Item Inspected	Condition	Comments	
Channel Sections and Joints	Good / Poor	Check for cracks	Ok
Channel Inlet Connection @ KT	Good / Poor	Check for cracks	Ok
Channel Outlet/Pipeline Inlet	Good / Poor	Check for cracks	Ok
Channel Bottom (during low flows)	Good / Poor		Ok
Bottom Joints (during low flows)	Good / Poor		Ok
Trash Rack Assembly Rail Units	Good / Poor	Check for corrosion and bolt tightness	Ok
Trash Racks	Good / Poor	Removed debris from trash racks	
Parshall Flume	Good / Poor	Check fiberglass and joint connections	Ok

General Comments:

The Kellogg Tunnel flow at this time is 1.89 mgd (1310 gpm), pH at this time is 2.67.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

Operators collected no sediment from the flume area.

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: March 30, 2017

Inspected By:

Gary Coast, Steve Brunner

Item Inspected	Condition	Comments	
Channel Sections and Joints	Good / Poor	Check for cracks	Ok
Channel Inlet Connection @ KT	Good / Poor	Check for cracks	Ok
Channel Outlet/Pipeline Inlet	Good / Poor	Check for cracks	Ok
Channel Bottom (during low flows)	Good / Poor		Ok
Bottom Joints (during low flows)	Good / Poor		Ok
Trash Rack Assembly Rail Units	Good / Poor	Check for corrosion and bolt tightness	Ok
Trash Racks	Good / Poor	Removed debris from trash racks	
Parshall Flume	Good / Poor	Check fiberglass and joint connections	Ok

General Comments:

The Kellogg Tunnel flow at this time is 2.48 mgd (1720 gpm), pH at this time is 2.48.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

Operators collected no sediment from the flume area.



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 01-Mar-17
		Received: 01-Mar-17
		Reported: 02-Mar-17 15:31

LAB #	X07C0001-01	-	-	-	-	-
SAMPLE ID	006-01-01-17	-	-	-	-	-
		03/01/2017 06:00	-	-	-	-
		Reporting Limit				
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0061 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [4]	-	-	-	-
Manganese	0.0200 mg/L	21.5 [3]	-	-	-	-
Zinc	0.020 mg/L	0.526	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.99 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.2 [2]	-	-	-	-

John Kern
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 03-Mar-17
		Received: 03-Mar-17
		Reported: 06-Mar-17 11:45

LAB #	X7C0051-01	-	-	-	-	-
SAMPLE ID	006-03-03-17	-	-	-	-	-
		03/03/2017 06:00	-	-	-	-
		Reporting Limit				
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0110	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [4]	-	-	-	-
Manganese	0.0200 mg/L	16.6 [3]	-	-	-	-
Zinc	0.020 mg/L	0.548	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	7.17 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.8 [2]	-	-	-	-

Kirby Gray
Technical Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 02-Mar-17
		Received: 03-Mar-17
		Reported: 06-Mar-17 11:46

LAB #	X7C0052-01	X7C0052-02	X7C0052-03	X7C0052-04	-	-
SAMPLE ID	KT-03-02-17	PTM-03-02-17	QC-03-02-17	CTP004-03-17	-	-
	03/02/2017 07:30	03/02/2017 08:00	03/02/2017 08:00	03/02/2017 07:50	-	-

Metals (Total) (Water)

Cadmium	0.0100 mg/L	0.112	1.01	1.01	0.0555	-	-
Lead	0.0500 mg/L	0.515	0.0145 [3]	0.0156 [3]	0.302	-	-
Manganese	0.0200 mg/L	71.0	-	-	-	-	-
Zinc	0.0200 mg/L	65.8 [1]	10.2	10.1	0.709	-	-

Classical Chemistry Parameters (Water)

pH	pH Units	5.04 [2]	7.43 [2]	7.24 [2]	-	-	-
Total Susp. Solids	mg/L	89.0	0.2 [3]	0.2 [3]	-	-	-

Kirby Gray
Technical Director



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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 06-Mar-17
		Received: 06-Mar-17
		Reported: 07-Mar-17 15:04

LAB #	X7C0081-01	-	-	-	-	-
SAMPLE ID	006-03-06-17	-	-	-	-	-
	03/06/2017 06:00	-	-	-	-	-
Reporting Limit						
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0080 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [4]	-	-	-	-
Manganese	0.0200 mg/L	25.9 [3]	-	-	-	-
Zinc	0.020 mg/L	0.475	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.92 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.6 [2]	-	-	-	-

Kirby Gray
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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 06-Mar-17
		Received: 06-Mar-17
		Reported: 10-Mar-17 10:37

LAB #	X7C0083-01	-	-	-	-	-
SAMPLE ID	KT-06-06-17	-	-	-	-	-
	03/06/2017 07:30	-	-	-	-	-
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.125	-	-	-	-
Lead	0.0500 mg/L	0.465	-	-	-	-
Manganese	0.0200 mg/L	70.0 [4]	-	-	-	-
Zinc	0.020 mg/L	68.6 [1] [4]	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	2.98 [2]	-	-	-	-
Total Susp. Solids	mg/L	93.0	-	-	-	-

Kirby Gray
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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 08-Mar-17
		Received: 08-Mar-17
		Reported: 09-Mar-17 11:31

LAB #	X7CD129-01	-	-	-	-	-
SAMPLE ID	006-03-08-17	-	-	-	-	-
	03/08/2017 06:00	-	-	-	-	-
Reporting Limit						
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0068 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [4]	-	-	-	-
Manganese	0.0200 mg/L	24.2 [3]	-	-	-	-
Zinc	0.020 mg/L	0.366	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.90 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.8 [2]	-	-	-	-

Kirby Gray
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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 13-Mar-17
		Received: 13-Mar-17
		Reported: 14-Mar-17 11:58

LAB #	X7C0249-01	-	-	-	-	-
SAMPLE ID	006-03-13-17	-	-	-	-	-
	03/13/2017 06:00	-	-	-	-	-
Reporting Limit						
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0067 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	9.95	-	-	-	-
Zinc	0.020 mg/L	0.385	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	7.05 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.8 [2]	-	-	-	-

John Kern
Laboratory Director



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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 13-Mar-17
		Received: 13-Mar-17
		Reported: 14-Mar-17 12:00

LAB #	X7C0250-01	-	-	-	-	-
SAMPLE ID	KT-08-13-17	-	-	-	-	-
	03/13/2017 07:30	-	-	-	-	-
Reporting Limit						
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.225	-	-	-	-
Lead	0.0500 mg/L	0.572	-	-	-	-
Manganese	0.0200 mg/L	32.6 [4]	-	-	-	-
Zinc	0.0200 mg/L	108 [1] [4]	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	2.84 [2]	-	-	-	-
Total Susp. Solids	mg/L	6.0	-	-	-	-

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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 15-Mar-17
		Received: 15-Mar-17
		Reported: 16-Mar-17 12:49

LAB #	X7C0813-01	-	-	-	-	-
SAMPLE ID	006-03-15-17	-	-	-	-	-
	03/15/2017 06:00	-	-	-	-	-
Reporting Limit						
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0064 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	4.02	-	-	-	-
Zinc	0.020 mg/L	0.484	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	7.12 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.6 [2]	-	-	-	-

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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 16-Mar-17
		Received: 17-Mar-17
		Reported: 21-Mar-17 12:12

LAB #	X7C081-01	X7C081-02	X7C081-03	-	-	-
SAMPLE ID	KT-03-16-17	PTM-03-16-17	CTP00X-03-16-17	-	-	-
Reporting Limit	03/16/2017 07:30	03/16/2017 08:00	03/16/2017 07:00	-	-	-

Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.227	1.02	0.0565	-	-
Lead	0.0500 mg/L	1.18	0.0855	0.295	-	-
Manganese	0.0200 mg/L	33.8	-	-	-	-
Zinc	0.020 mg/L	97.3 [1]	10.4	0.829	-	-

Classical Chemistry Parameters (Water)						
pH	pH Units	2.93 [2]	7.41 [2]	-	-	-
Total Susp. Solids	5.0 mg/L	16.0	4.4	-	-	-

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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 17-Mar-17
		Received: 17-Mar-17
		Reported: 20-Mar-17 11:15

LAB #	X7CDB80-01	-	-	-	-	-
SAMPLE ID	006-03-17-17	-	-	-	-	-
	03/17/2017 06:00	-	-	-	-	-
Reporting Limit						
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0104	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [4]	-	-	-	-
Manganese	0.0200 mg/L	5.26 [3]	-	-	-	-
Zinc	0.020 mg/L	0.675	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	7.11 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.8 [2]	-	-	-	-

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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 20-Mar-17
		Received: 20-Mar-17
		Reported: 21-Mar-17 15:03

LAB #	X7CD0409-01	-	-	-	-	-
SAMPLE ID	KT-08-20-17	-	-	-	-	-
	08/20/2017 07:30	-	-	-	-	-
Reporting Limit						
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.512	-	-	-	-
Lead	0.0500 mg/L	1.05	-	-	-	-
Manganese	0.0200 mg/L	52.0	-	-	-	-
Zinc	0.0200 mg/L	190 [1] [4]	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	2.75 [2]	-	-	-	-
Total Susp. Solids	mg/L	10.0	-	-	-	-

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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 20-Mar-17
		Received: 20-Mar-17
		Reported: 21-Mar-17 15:00

LAB #	X7CD408-01	-	-	-	-	-
SAMPLE ID	006-03-20-17	-	-	-	-	-
	03/20/2017 06:00	-	-	-	-	-
Reporting Limit						
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0081 [3]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [4]	-	-	-	-
Manganese	0.0200 mg/L	4.27 [1]	-	-	-	-
Zinc	0.020 mg/L	0.513	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.92 [2]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.6 [3]	-	-	-	-

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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 22-Mar-17
		Received: 22-Mar-17
		Reported: 23-Mar-17 11:41

LAB #	X7CD450-01	-	-	-	-	-
SAMPLE ID	006-05-22-17	-	-	-	-	-
		03/22/2017 06:00	-	-	-	-
		Reporting Limit				
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0060 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	2.79	-	-	-	-
Zinc	0.020 mg/L	0.369	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.65 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.4 [2]	-	-	-	-

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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 23-Mar-17
		Received: 24-Mar-17
		Reported: 29-Mar-17 16:34

LAB #	X7C0524-01	X7C0524-02	X7C0524-03	X7C0524-04	X7C0524-05	-
SAMPLE ID	KT-03-23-17	QC-03-23-17	RB-03-23-17	TB-03-23-17	CTP00-03-23-17	-
Reporting Limit	03/13/2017 07:30	03/13/2017 07:30	03/13/2017 06:00	03/13/2017 06:00	03/13/2017 07:00	-

Metals (Total) (Water)

Cadmium	0.0100 mg/l	0.857	0.849	<0.0009 [4]	<0.0009 [4]	0.0534	-
Lead	0.0500 mg/l	0.943	0.932	<0.0036 [4]	<0.0036 [4]	0.285	-
Manganese	0.0200 mg/l	64.0	63.0	-	-	-	-
Zinc	0.020 mg/l	298 [1]	297 [1]	0.035	<0.03 [4]	0.784	-

Classical Chemistry Parameters (Water)

pH	pH Units	2.66 [2]	2.66 [2]	-	-	-	-
Total Susp. Solids	mg/l	5.0	15.0	14.0	-	-	-

Kirby Gray
Technical Director



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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 24-Mar-17
		Received: 24-Mar-17
		Reported: 27-Mar-17 15:09

LAB #	X07C0523-01	-	-	-	-	-
SAMPLE ID	006-03-24-17	-	-	-	-	-
	03/24/2017 06:00	-	-	-	-	-
Reporting Limit						
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0058 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	2.31	-	-	-	-
Zinc	0.020 mg/L	0.524	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.50 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.8 [2]	-	-	-	-

John Kern
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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 27-Mar-17
		Received: 27-Mar-17
		Reported: 28-Mar-17 15:53

LAB #	X7C0559-01	-	-	-	-	-
SAMPLE ID	KT-08-27-17	-	-	-	-	-
	09/17/2017 07:30	-	-	-	-	-
Reporting Limit						
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.604	-	-	-	-
Lead	0.0500 mg/L	0.746	-	-	-	-
Manganese	0.0200 mg/L	71.0 [4]	-	-	-	-
Zinc	0.0200 mg/L	214 [1] [4]	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	2.83 [2]	-	-	-	-
Total Susp. Solids	mg/L	10.0	-	-	-	-

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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 27-Mar-17
		Received: 27-Mar-17
		Reported: 28-Mar-17 15:36

LAB #	X7C0560-01	-	-	-	-	-
SAMPLE ID	006-03-27-17	-	-	-	-	-
	03/27/2017 06:00	-	-	-	-	-
Reporting Limit						
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0061 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	2.05	-	-	-	-
Zinc	0.020 mg/L	0.284	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.52 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.4 [2]	-	-	-	-

John Kern
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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 29-Mar-17
		Received: 29-Mar-17
		Reported: 30-Mar-17 13:06

LAB #	X7C0597-01	-	-	-	-	-
SAMPLE ID	006-03-29-17	-	-	-	-	-
		03/19/2017 06:00	-	-	-	-
		Reporting Limit				
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0055 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	2.34	-	-	-	-
Zinc	0.020 mg/L	0.220	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.61 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	1.0	-	-	-	-

John Kern
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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 30-Mar-17
		Received: 31-Mar-17
		Reported: 04-Apr-17 14:50

LAB #	X7CD661-01	X7CD661-02	-	-	-	-
SAMPLE ID	KT-03-30-17	CTPXX-03-30-17	-	-	-	-
	03/30/2017 07:30	03/30/2017 07:50	-	-	-	-
Reporting Limit						
Metals (Total) (Water)						
Cadmium	0.0100 mg/l	0.596	0.0534	-	-	-
Lead	0.0500 mg/l	0.712	0.288	-	-	-
Manganese	0.0200 mg/l	72.1	-	-	-	-
Zinc	0.0200 mg/l	215 [1]	0.814	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	2.87 [2]	-	-	-	-
Total Susp. Solids	5.0 mg/l	10.0	-	-	-	-

John Kern
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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 29-Mar-17
		Received: 29-Mar-17
		Reported: 30-Mar-17 13:06

LAB #	X7C0597-01	-	-	-	-	-
SAMPLE ID	006-03-29-17	-	-	-	-	-
	03/29/2017 06:00	-	-	-	-	-
Reporting Limit						
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0055 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	2.34	-	-	-	-
Zinc	0.020 mg/L	0.220	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.61 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	1.0	-	-	-	-

John Kern
Laboratory Director